



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,798	10/13/2005	Tokuo Tsuura	0445-0352PUS1	8677
2292	7590	11/13/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			CORDRAY, DENNIS R	
PO BOX 747				
FALLS CHURCH, VA 22040-0747			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/534,798	TSUURA ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Dennis Cordray	1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 29 September 2006.

2a) This action is **FINAL**.                  2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-11 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 9/29/06, 10/16/06.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

Applicant's amendments filed 9/29/2006 have overcome the rejections of claims 1-11 under 35 U.S.C. 102(b) and 35 U.S.C. 103(a). Therefore, the rejections have been withdrawn. However, upon further consideration, a new grounds of rejection are made as detailed below.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (4981166) in view of Lee (5989390).

Brown et al discloses a spirally wound paper tube used for a feed tube in a sand mold for molten metal in casting (Abs). The paper tube is disposed in a casting sand mold in a sprue or riser cavity (col 5, lines 13-24). Brown et al also teaches that a spirally wound tube is known to provide additional strength (col 8, lines 55-59). The sleeve is treated with a flame retardant so it is resistant to the high temperatures of molten metal.

Brown et al does not disclose that the composition of paper used to make the spirally wound tube comprises carbon fibers, organic fibers and a binder. Brown et al also does not disclose that the paper contains an inorganic binder.

Lee discloses a friction paper comprising, by weight, 10-65% cellulose fibers (organic fibers), 5-50% carbon fibers, 5-50% activated carbon, 1-20% novoloid fibers (organic fibers), up to 65% diatomaceous earth, and latex, the paper being impregnated with a thermosetting resin (Abs). Suitable thermosetting resins include phenolic and epoxy resins, which are recited on p 5, lines 20-21 of the instant Disclosure. The resin is present in an amount 5-50% of the paper (col 4, lines 19-26). The composition significantly overlays the claimed composition. Diatomaceous earth comprises mainly amorphous silica and hydrated silica. The paper is made using a drylaid, airlaid or wetlaid process on a standard paper machine (col 2, line 66 to col 3, line 5). The thermosetting resin can be a component of the original composition (slurry) or can be added as a post treatment (col 2, lines 44-46). Due to its use as a friction paper, the paper maintains strength at high temperatures.

The art of Brown et al, Lee and the instant invention is analogous as pertaining to paper and paper products that are resistant to high heat. It would have been obvious to one of ordinary skill in the art to use the paper of Lee to make the feed tube of Brown et al because it is heat resistant and maintains strength at high temperature. The diatomaceous earth will function as an inorganic silica binder in the paper because the composition of Lee and the instant invention are substantially the same. The diatomaceous earth and phenolic or epoxy resins have different melting points. Where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Art Unit: 1731

In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (4981166) in view of Chuluda (4256801).

Brown et al does not disclose that the composition of paper used to make the spirally wound tube comprises carbon fibers, organic fibers and a binder. Brown et al also does not disclose that the paper contains an inorganic binder.

Chuluda discloses a flame resistant flexible organic fiber sheet comprising, by weight, 25-65% cellulose fibers, 5-20% carbon fibers 5-20% flame resistant organic fibers, fillers, a synthetic binder and an oil resistant elastomeric sizing (Abs). The binder can be a phenol-formaldehyde resin (col 4, lines 37-40). The flame resistant fibers are crosslinked phenolic fibers, known as novoloid fibers (col 3,lines 31-34). The resin is added by impregnation or by beater addition into the paper stock (col 4, lines 29-50). The paper can contain up to 30% diatomaceous earth (col 3,lines 65-68).

The art of Brown et al, Chuluda and the instant invention is analogous as pertaining to paper and paper products that are resistant to high heat. It would have been obvious to one of ordinary skill in the art to use the paper of Chuluda to make the feed tube of Brown et al because it is heat resistant and maintains strength at high temperature. The diatomaceous earth will function as an inorganic silica binder in the paper for the reasons previously recited. The diatomaceous earth and phenolic or

Art Unit: 1731

epoxy resins have different melting points. The flexibility of the paper would make it readily usable for spiral winding.

Claims 1-3, 7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (4981166) in view of Ling-Chen (6540874).

Brown et al does not disclose that the composition of paper used to make the spirally wound tube comprises carbon fibers, organic fibers and a binder. Brown et al also does not disclose that the paper contains an inorganic binder.

Ling-Chen discloses a carbon fiber paper comprising, by weight, 10-50% carbon fibers and 50-90% cellulose fibers with resin (Abs; col 1, line 64 to col 2, line 7). The cellulose fiber to resin content is 80-85:15-20% by weight. The resin is a phenolic resin added to the slurry (col 2, lines 66-67). The paper can be processed into various products (Abs), thus is flexible.

The art of Brown et al, Ling-Chen and the instant invention is analogous as pertaining to paper and paper products that are resistant to high heat. It would have been obvious to one of ordinary skill in the art to use the paper of Ling-Chen to make the feed tube of Brown et al because it is heat resistant and maintains strength at high temperature. The flexibility of the paper would make it readily usable for spiral winding.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1731

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

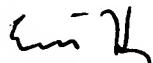
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



DRC



ERIC HUG  
PRIMARY EXAMINER